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| 10/688,615 | 10/17/2003 | Michael Haubs | 05587-00358-US | 2436 |

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| EXAMINER | |
|---|---|
| LUNDGREN, JEFFREY S | |

| ART UNIT | PAPER NUMBER |
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| 1639 | |

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/688,615 | HAUBS ET AL. | |
| | Examiner | Art Unit | |
| | JEFFREY LUNDGREN | 1639 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *02 January 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-13 and 17-22* is/are pending in the application.

4a) Of the above claim(s) *3-6,11-13,and 17-22* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2 and 7-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

### *Continued Examination Under 37 CFR 1.114*

A Request for Continued Examination under 37 CFR § 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR § 1.114, and the fee set forth in 37 CFR § 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR § 1.114. Applicant's submission filed on January 2, 2008, has been entered.

Claims 1-13 and 17-22 are pending in the instant application; claims 3-6, 11-13 and 17-22 are withdrawn as being directed to a non-elected species; claims 1, 2 and 7-10 are the subject of the Office Action below.

### *Claim Rejections - 35 USC § 102 – Withdrawn*

The rejection of 1, 2 and 7-10, under 35 U.S.C. § 102(b) as being anticipated by Nielsen *et al.*, Int. Pub. No. WO 02/38354, published on May 16, 2002, is withdrawn in view of Applicants' amendment to the claims.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. § 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

*Claims 1, 2 and 7-10 are obvious over Nielsen, Sun, Ohara and Ashmead*:

Claim 1, 2 and 7-10, are rejected under 35 U.S.C. § 103(a) as being unpatentable over Nielsen *et al.*, Int. Pub. No. WO 02/38354, published on May 16, 2002, in view of Sun *et al.*, WO 02/34381 A1, published on May 2, 2002, Ohara *et al.*, U.S. Patent No. 4,283,308, issued on August 11, 1981, and Ashmead *et al.*, U.S. Patent 3,799,396, issued on March 26, 1974.

Claim 1 is directed to A process for continuous preparation of mixtures from at least two components, comprising the steps of: a) charging at least two individual components to storage vessels; b) introducing each individual component by way of a conveying device for each component into a mixing device, each conveying device having a conveying rate; c) varying the conveying rate of at least one of the conveying devices in such a way that the conveying rate thereof varies periodically corresponding to a periodic function varying between a lower and an upper limiting value and whose periods are constant over time; and mixing the individual components in the mixing device.

As in claim 1, Nielsen teaches a method for production of a polymer product with varying hardness comprising adding together and mixing at least two substances with predetermined relative amounts, filling the substances after mixing into a form, and hardening of the substances to a solid elastic product. According to the invention, the relative amounts of the substances are continuously varied during filling of the form in order to achieve a product with continuously varying hardness within the product (see Figures 1 and 2, and description thereof). Nielsen states:

> "The flowing speed of the different substances to be mixed is calculated by the computer 301. For example, this can be achieved by interpolation between the data as shown in Table 2. From these data, a polynomial equation can be calculated which describes the continues variation of the flow speed for the different substances by regulation of the speed for each of the pump motors 206. Being able to produce elastomer products with continuously varying hardness within the product, several known problems may be solved."

Nielsen, page 6, lines 23-30.

The following is also found in Nielsen: as in claim 2, at least one of the rates is varied periodically and one rate continuously rises (see Figure 1). As in claim 7, the conveying rates in

proportional to a give compositional resolution (see Figure 1). As in claim 8, the total conveying rates are constant in order to produce continuously varying hard films (page 6, lines 23-30). As in claim 9, each one of the components is a liquid, solid or gas. As in claim 10, Nielsen teaches polymer melts and additives (see Table 1 on pages 3 and 4).

Although Nielsen teaches continually varying the individual mixture components, wherein the variation can be described by a polynomial equation, Nielsen does not explicitly recite the claimed expression of claim 1, "the conveying rate thereof varies periodically corresponding to a periodic function varying between a lower and an upper limiting value and whose periods are constant over time."

Sun teaches a system and method for providing a combinatorially conveyed mixture from a mixing device, where each of the components can be continually varied in order to identified the proper mixture of each component having the desired physical and/or chemical properties. Sun states:

> "Fig. 11, which summarizes the methods described in detail above, is a functional block diagram of a method 106 for making an array of coated materials that form a coating library. The method 106 includes providing a substrate 18 having a surface 16 with a plurality of predefined regions 22 (Block 108). Preferably, the substrate 18 is moving and, more preferably, the substrate 18 is moving at a substantially constant rate. The method 106 further includes providing a plurality of materials 14 for coating the substrate 18 (Block 110). The method 106 also includes providing a ***continuously varying mixture*** 13 of the plurality of materials 14 for coating the substrate 18 (Block 112). ***This may be accomplished using a mixer 26.*** The composition of the continuously varying mixture 13 of the plurality of materials 14 is controlled by a controller 28 (Block 114). Finally, the method 106 includes delivering the ***continuously varying mixture 13 of the plurality of materials 14*** onto the surface 16 of the preferably moving substrate 18 to form a predefined coating 32 on each of the plurality of predefined regions 22 of the substrate 18 (Block 116). The continuously varying mixture 13 of the plurality of materials 14 is preferably delivered onto the surface 16 of the substrate 18 in a vaporized/atomized or liquid state and the predefined coating 32 may be a thin film coating. The method 106 may optionally include curing each of the plurality of predefined regions 22 of the coated substrate 18 using a selected one of a plurality of curing environments."

Sun, page 18, line 18 through page 19, line 6 (emphasis added).

Ohara teaches a process for producing an auto exhaust gas catalyst capable of simultaneously removing hydrocarbons, carbon monoxide and nitrogen oxides. The experiments of Ohara are carried out by various procedures for optimization, and include a system component for continuously varying air-fuel mixtures that are introduced to the experimental catalysts. Ohara system is described as follows:

> "In order to simulate a periodic deviation of the A/F ratio from stoichiometry in a "closed loop operation" with an oxygen sensor, a "function generator" is installed in NISSAN-L-18E engine (1.8 l displacement) with an electronic fuel injection system. The A/F perturbation technique used is very similar to the one described in SAE 770371.
>
> An external periodic signal of sinusoidal shape at a frequency of 1.0 Hz from the function generator is introduced into an electronic control unit (ECU). Then, the DC voltage related to an A/F change of +/- 1.0 A/F unit (for example, from 13.5 to 15.5) is empirically determined. The engine is loaded by an electric dynamometer to simulate a typical cruising load."

Ohara, col. 8, lines 10-23.

Ashmead teaches a method of proportioning two liquids comprising periodically controlling the operation of a valving means to control the amount of each liquid supplied to a mixing region during each period of valve operation to produce a supply of a liquid mixture having a precisely controlled time varying concentration of each liquid:

> "One of the greatest advantages of the present system is its versatility. The initial and final concentration of the eluent can be set with ease, and the rate of change of this concentration can also be set wtih ease. FIG. 6 illustrates a programming sequence that can be used to change the concentration in the eluent. This system uses ***two electronic signals***; one signal, signal 60, is ***a periodic saw tooth wave***, the ***other signal, signal 62, is a gating signal***, which in the case illustrated is a linear ramp. The programming means, being an electronic signal generator, generates the two signals simultaneously, and is adapted to activate one valve, when the instantaneous value of the saw tooth wave is greater than the instantaneous value of the gating function, and to actuate the other valve when the instantaneous value of the saw tooth wave is less than the instantaneous value of the gating function. If valve 16 is the first valve, the shaded region of the bar below the graph indicates the time interval that liquid A is being supplied to the mixing chamber, and the unshaded regions indicate the time intervals where liquid B is being supplied. ***The relative***

> ***periods will depend on the types of functions generated. Utilizing the versatility of electronic function generating, almost any programming sequence can be envisioned. The one illustrated is a useful programming sequence. A saw tooth wave 60 combined with any monotonically increasing gating signal of arbitrary function, such as signal 63 is another useful sequence. A linear gating signal 62, combined with any periodic signal of arbitrary function would also be useful.***"

Ashmead, col. 8, lines 7-37 (emphasis added).

Each of Nielsen, Sun, Ohara and Ashmead are directed towards methods of preparing an optimized product mixture wherein the amounts/concentrations of the individual components of the mixture are varied. One of ordinary skill in the art would have had a reasonable expectation of success in utilizing the periodic function as claimed because the use of periodic functions for controllably varying the amounts of various components of a mixture in an effort for optimization and/or understanding the role that the amounts and type of each component have on the mixture is well known and appreciated in these arts as illustrated by Ohara and Ashmead, and would produce predictable results when combined with the component mixing methods of Nielsen and/or Sun. Accordingly, the invention as a whole was *prima facie* obvious at the time it was claimed.

## ***Conclusions***

No claim is allowable.

If Applicants should amendment the claims, a complete and responsive reply will clearly identify where support can be found in the disclosure for each amendment. Applicants should point to the page and line numbers of the application corresponding to each amendment, and provide any statements that might help to identify support for the claimed invention (*e.g.*, if the amendment is not supported *in ipsis verbis*, clarification on the record may be helpful). Should Applicants present new claims, Applicants should clearly identify where support can be found in the disclosure.

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Jeff Lundgren whose telephone number is 571-272-5541. The Examiner can normally be reached from 7:00 AM to 5:30 PM.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, James Schultz, can be reached on 571-272-0763. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/JSL/

/Jon D. Epperson/
Primary Examiner, AU 1639